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Quantum Magnetism with Ultracold Atoms JENNIE GUZMAN, SABRINA LESLIE, MUKUND VENGALATTORE, CHRISTOPHER SMALLWOOD, DAN STAMPER-KURN, UC Berkeley, Department of Physics — We report on a number of recent experimental studies of F=1 ^{87}Rb spinor Bose Einstein condensates. Utilizing in-situ magnetization sensitive imaging, we are able to spatially and temporally resolve the vector magnetization profile of the spinor condensate. We probe the evolution of spin textures in an inhomogeneous magnetic field and explore the thermal equilibrium properties of the ferromagnetic spinor condensate. In addition, we study the amplification of quantum fluctuations in a spinor condensate that is rapidly quenched from its paramagnetic phase to its ferromagnetic phase. We characterize the amplification of these quantum fluctuations, as well as the initial quantum fluctuations from which they evolve.

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